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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,178	04/16/2004	Shiro Nishimoto	44085-171	8286

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EXAMINER

DEGHAN, QUEENIE S

ART UNIT	PAPER NUMBER
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1731

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/21/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/825,178

Applicant(s)

NISHIMOTO ET AL.

Examiner

Queenie Dehghan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. 10/212144.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (2002/0139145) in view of Watanabe et al. (2001/0041271) and Murakami et al. (6,449,975). Murakami '145 discloses a manufacturing process comprising of press molding a glass substrate between an upper mold and lower mold without regulating the edge surface of the outer periphery portion of the glass and without processing the outer periphery portion of the glass while molding ([0015]) and subsequently crystallizing or annealing the glass substrate ([0054]). Murakami '145 disclose

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supplying a glass gob in a molten state to the molds, indicating that a glass melting process was performed in order to achieve the molten state of the gob ([0023]).

Murakami further discloses this in detail in another patent ('975), wherein glass is melted and flowed onto a lower mold (col. 14 lines 43-47). It would have been obvious to one of ordinary skill in the art at the time the invention was made to supply molten glass that has been melted to the lower mold because it allows for an exact amount of glass needed to make desired size of pressed glass. Murakami '145 further discloses steps for polishing and washing the glass substrate ([0058], [0059]). However, Murakami does not specifically recite lapping steps. Watanabe et al. disclose a manufacturing method for a glass substrate comprising a first and second lapping processes ([0025]), a polishing process ([0026]), and a washing process ([0035]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the lapping process of Watanabe et al. in order to improve upon the shape of the glass substrate, as taught by Watanabe et al.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (2002/0139145) in view of Watanabe et al. (2001/0041271), Nakamura et al. (2002/0054976), Sakamoto (6,314,764), and Murakami et al. (6,449,975). Murakami discloses a manufacturing process comprising of press molding a glass substrate between an upper mold and lower mold without regulating the edge surface of the outer periphery portion of the glass and without processing the outer periphery portion of the glass while molding ([0015]) and subsequently crystallizing or annealing the glass substrate ([0054]). Murakami '145 disclose supplying a glass gob in a molten state to

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the molds, indicating that a glass melting process was performed in order to achieve the molten state of the gob ([0023]). Murakami further discloses this in detail in another patent ('975), wherein glass is melted and flowed onto a lower mold (col. 14 lines 43-47). It would have been obvious to one of ordinary skill in the art at the time the invention was made to supply molten glass that has been melted to the lower mold because it allows for an exact amount of glass needed to make desired size of pressed glass. Murakami further discloses steps for polishing, washing, and cutting the glass substrate ([0058], [0059]). However, Murakami does not specifically recite lapping steps or a coring process. Watanabe et al. teach a manufacturing method for a glass substrate comprising a first and second lapping processes ([0025]), a polishing process ([0026]), and a washing process ([0035]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the lapping process of Watanabe et al. in order to improve upon the shape of the glass substrate, as taught by Watanabe et al. Furthermore, Nakamura et al. teach a method for manufacturing a glass substrate comprising of press molding between an upper and lower mold ([0009]), wherein the outer surface of the glass substrate is unprocessed ([0048]). Nakamura et al. further teach a core drilling process for forming a center hole, a precision inner periphery edge surface process ([0061]), and polishing all the processed surfaces of the glass substrate ([0067], [0068]). Since Nakamura et al. teach forming a glass substrate from an axisymmetric transformation; it would be obvious to one of ordinary skill to expect that the center core that is drilled out is at the center of gravity of the glass substrate ([0048]). Sakamoto also teach a center hole punching process for a glass

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substrate (col. 3 lines 54-56) and a polishing step for the inner edge of glass substrate (col. 1 lines 28-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the core drilling and inner edge processing steps of Nakamura et al. and Sakamoto in order to create a doughnut shape disk with a mirror surface by removing the projections on the disk caused by the molds, as taught by Nakamura et al. ([0067]).

5. Claims 11-12, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (2002/0139145) in view of Sakamoto (6,314,764) and Murakami et al. (6,449,975). Regarding claims 11-12, Murakami discloses a manufacturing process comprising of press molding a glass substrate between an planar upper mold and lower mold without regulating the edge surface of the outer periphery portion of the glass and without processing the outer periphery portion of the glass while molding ([0015], figure 2a, 2b) and subsequently crystallizing or annealing the glass substrate ([0054]). Murakami '145 disclose supplying a glass gob in a molten state to the molds, indicating that a glass melting process was performed in order to achieve the molten state of the gob ([0023]). Murakami further discloses this in detail in another patent ('975), wherein glass is melted and flowed onto a lower mold (col. 14 lines 43-47). It would have been obvious to one of ordinary skill in the art at the time the invention was made to supply molten glass that has been melted to the lower mold because it allows for an exact amount of glass needed to make desired size of pressed glass. Murakami further discloses steps for polishing, washing, and cutting the glass substrate ([0058], [0059]). However, Murakami does not specifically recite a lapping

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step. Sakamoto teach press molding a glass substrate to give a disk shape form, an annealing process, lapping process, polishing process and a washing process (col. 1 lines 25-51). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the process steps of Sakamoto, such as the lapping process, in the manufacturing methods of Murakami in order to adjust the thickness of the glass substrate, as taught by Sakamoto.

6. Regarding claim 16, Murakami fails to disclose details for the crystallization or annealing steps of the glass substrate. Sakamoto teach an annealing step where the glass is maintained at a glass transition temperature, subsequently cooled to a warp point at a comparatively slow speed and afterwards, cooled at a comparatively high cooling speed (col. 3 lines 40-45). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the annealing step of Sakamoto to remove strain in the glass substrate.

7. Regarding claim 18, Murakami discloses the step of forming a recording layer on the substrate ([0061]).

8. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (2002/0139145) in view of Sakamoto (6,314,764), as applied to claim 11 above, in further view of Takagi et al. (WO 00/66504, presented in 6,539,750).

Although Murakami mold comprises a sleeve that serves as a spacer between the lower and upper molds ([0048]), Murakami and Sakamoto fail to disclose a spacer that makes contact with the molding surface of the lower mold. Takagi et al. teach a planar mold, wherein a parallel spacer is intervened between the upper mold and the lower mold and

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is in contact with the molding surface of the lower mold (col. 7 lines 24-26, figure 1B). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the spacer of Takagi et al. in the molding process of Murakami and Sakamoto in order to control the thickness of the glass substrate formed.

9. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (2002/0139145) in view of Sakamoto (6,314,764), as applied to claim 11 above, in further view of Zou (6,627,566). Murakami discloses a crystallization step and an annealing step, but not the details of the steps. Zou teaches a method for manufacturing a glass substrate comprising of a crystallization step, where the glass substrate is heated up to the glass transition point $T_g + 50^\circ\text{C}$ to $T_g + 300^\circ\text{C}$ of the glass material, cooled to a temperature in the vicinity of the glass transition point and then gradually cooled (col. 13 line 56 to col. 14 line 1, col. 19 lines 16-28, Table 1). Zou also teaches an annealing step where the glass substrate is maintained at a temperature around T_g of the glass and cooled (col. 19 line 9-13). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the crystallization or annealing steps of Zou in the process of Murakami and Sakamoto in order to provide for a glass substrate with high strength.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (2002/0139145) in view of Sakamoto (6,314,764), as applied to claim 11 above, in further view of Nakamura et al. (2002/0054976). Murakami and Sakamoto fail to disclose an inspection step. Nakamura et al. teach a method for manufacturing glass substrates comprising of a inspection step where the substrate is confirmed to be within

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the desired ranges ([0036] to [0040]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the inspection step of Nakamura et al. in the process of Murakami and Sakamoto in order to ensure the surface quality of the glass substrate has been obtained.

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murakami (2002/0139145) in view of Watanabe et al. (2001/0041271), Nakamura et al. (2002/0054976), Sakamoto (6,314,764), and Murakami et al. (6,449,975), as applied to claim 10 above, in further view of Meguro (Derwent abstract to JP 2000-090619).

Nakamura et al. and Sakamoto teach center hole coring on the glass substrate.

Meguro teach of a glass substrate, whose center core has a hole and, where the center of gravity has been set to the core. One of ordinary skill in the art would have been expected to detect the center of gravity in order to provided for a center of gravity in the core hole, as suggested by Meguro. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to expect the core of the glass substrate of Murakami, Watanabe et al., in the core process of Nakamura et al. and Sakamoto to have detected a center of gravity of the glass substrate, in order to provide for a center of gravity in the core hole of the substrate.

Response to Arguments

12. Applicant's arguments filed November 30, 2006 have been fully considered but they are not persuasive. In regards to the applicant's remark to paragraph [0059] in the prior art of Murakami, the amended claims 9-11 recites the new limitation of not

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processing the periphery of the glass while press molding in the mold. Murakami do not process the periphery of the glass while press molding in the mold. Paragraph [0059] refers to processing after the molding process.

13. In regards to applicant's argument with respect to the glob of glass supplied to the lower mold, one of ordinary skill in the art would understand that a glob of glass indicates molten glass that has obviously been put through a melting process. This step was further exemplified in the prior art of Murakami '975.

14. Applicant's arguments with respect to claims 9-11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is (571)272-8209. The examiner can normally be reached on Monday through Friday 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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